

REMARKS

Claims 1-9, 11, 13-18, and 27-44 are now pending in the application. Claims 45-50 are withdrawn from consideration. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the amendments and remarks contained herein.

CLAIM OBJECTIONS

Claims 34-36 are objected to by the Examiner for containing informalities. Claim 34 has been amended to delete "writes" and insert – writes --. Therefore, the objections to the claims should be moot.

REJECTION UNDER 35 U.S.C. § 102

Claims 27-32, 34, and 35 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Pannekoek et al (U.S. Pat. No. 4,748,464). This rejection is respectfully traversed.

The Examiner alleges that Pannekoek et al discloses a printing device that anticipates the claimed invention. Applicants respectfully assert, however, that independent claims 27 and 34 call for a printing device which writes a pattern on an electronic paper with an electric field. Pannekoek does not disclose such a device. Pannekoek, rather, discloses a device that transfers a powder image onto a piece of paper. This device is described in column 4, lines 49-65 of Pannekoek,

"FIG. 2 diagrammatically illustrates a printer equipped with an image-forming element 10 according to the present invention. In an image-forming station 11, a magnetic roller 12 is disposed a short distance from the surface of image-forming element 10. Magnetic roller 12

comprises a rotatable electrically conductive nonmagnetic sleeve and an internal stationary magnet system. The rotatable sleeve of a magnetic roller 12 is covered with a uniform layer of electrically conductive and magnetically attractable toner powder which in an image-forming zone 13 is in contact with image-forming element 10. By applying a voltage between magnetic roller 12 and one or more of the selectively controllable image-forming electrodes of image-forming element 10, a powder image is formed on image-forming element 10. This powder image is transferred by pressure to a heated rubber-cover transfer roller 14.” (emphasis added)

Furthermore, in column 5, lines 5-9 of Pannekoek, it states,

“The temperatures of belt 21 and roller 14 are adjusted to one another so that the image fuses on the sheet of paper. The sheet of paper provided with the image is then fed via conveyor roller 17 to tray 18.” (emphasis added)

Pannekoek does not disclose a printing device that writes a pattern on an electronic paper with an electric field, as claimed. Moreover, the Examiner alleges that X Pannekoek discloses pixels. Applicants respectfully assert, however, that Pannekoek does not disclose pixels, but merely electrodes 2 and 4 (Figure 1 of Pannekoek) formed in lines. The electrodes 2 and 4 of Pannekoek are not pixels because the electrodes 2 and 4 are connected at conductive portions 5. As such, the electrodes 2 and 4 taught by Pannekoek are unable to be activated selectively as one or more pixels. As Pannekoek does not teach pixels or writing a pattern on electronic paper with an electric field as claimed, Pannekoek does not anticipate the claimed printing device.

With respect to dependent claims 28-32, which are dependent on independent claim 27, and claim 35, which is dependent on claim independent claim 34, these claims are not anticipated for at least the same reasons as their independent base claims 27 and 34. Accordingly, reconsideration and withdrawal of this rejection is respectfully requested.

REJECTION UNDER 35 U.S.C. § 103

Claims 1-5, 8, 9, 11, 13-16, 37-40, and 42-44 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Vincent (5,866,284) in view of Pannekoek (U.S. Pat. No. 4,748,464). This rejection is respectfully traversed.

The Examiner alleges that it would have been obvious to modify Vincent to have the pixel electrodes on the outer circumference of the drum as taught by Pannekoek, in order to more accurately control the image areas, since the electric field on a particular point on the drum can be changed up until the moment right before the point touches the paper.

Applicants respectfully assert, however, that Vincent teaches away from the use of electrodes and, therefore, it would not have been obvious to combine the teachings of Pannekoek with the teachings of Vincent. More particularly, in column 2, lines 13-27, Vincent states,

“Although electrode arrays provide the advantage of a potentially compact printer, they are impractical from both a cost and print speed standpoint. Each electrode must have its own high voltage driver to produce voltage swings of 500-600 volts across the relatively low dielectric re-writable paper thickness to rotate the dielectric spheres. Such drivers and their interconnects across an array of electrodes makes electrode arrays costly. The print speed achievable through electrode arrays is also significantly limited because of the short nip time the paper experiences within the writing field. The color rotation speed of dichroic spheres under practical field intensities is in the range of 20 msec or more. At this rate, a 300 dpi resolution printer employing an electrode array would be limited to under one page per minute print speed. Thus, it can be seen that electrode array printing techniques impose resolution, cost and speed limits upon re-writable media printing devices, and hinder the use of these devices in many applications.” (emphasis added)

By teaching away from the use of electrodes, Vincent contains no suggestion or motivation to incorporate the drum with electrodes as taught by Pannekoek. "A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention." *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983) As such, it would not have been obvious to combine the teachings of Pannekoek with the teachings of Vincent to arrive at the claimed invention called for in independent claims 1, 8, 11, 37, and 42. X

With respect to dependent claims 2-5, 9, 13-16, 38-40 and 43, these claims are also not obvious for at least the same reasons as independent claims 1, 8, 11, 37, and 42, discussed above.

Claims 6, 7, 17, 18 and 41 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Vincent (U.S. Pat. No. 5,866,284) in view of Pannekoek (U.S. Pat. No. 4,748,464) and, further in view of Haas (U.S. Pat. No. 6,100,909). This rejection is respectfully traversed.

Claims 6, 7, 17, 18 and 41 are dependent on independent base claims 1, 8, 11, and 37, respectively. Applicants respectfully assert that these dependent claims should be in condition for allowance for at least the same reasons as set forth above. More particularly, it would not have been obvious to utilize the switching elements as taught by Haas in conjunction with the teachings of Vincent and Pannekoek because Vincent teaches away from the use of electrodes. Moreover, as far as Vincent teaches away from the use of electrodes, it would not have been obvious to combine the teachings of Vincent with any prior art reference to arrive at the claimed invention.

Claims 33 and 36 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Pannekoek (U.S. Pat. No. 4,748,464) in view of Haas (U.S. Pat. No. 6,100,909).

As stated above in the rejection under 35 U.S.C. § 102(e), Pannekoek does not anticipate the claimed invention. Pannekoek, rather, discloses a device that transfers a powder image onto a piece of paper and is completely silent with respect to an electronic paper printer. There is no suggestion or motivation to modify Pannekoek to be an electronic paper printer. Moreover, Haas also discloses the use of toner powder and fails to teach an electronic paper printer. As neither Pannekoek nor Haas contain any suggestion or motivation to utilize an electronic paper printer, it would not have been obvious to incorporate the switching elements of Haas into the printer of Pannekoek to arrive at the claimed invention. Furthermore, claims 33 and 36 are dependent on independent claims 27 and 34, respectively, and should be in condition for allowance for at least the same reasons as independent claims 27 and 34.

Therefore, reconsideration and withdrawal of this rejection is respectfully requested.

CONCLUSION

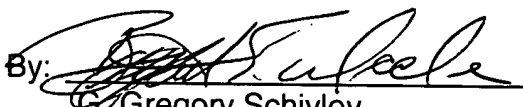
It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the

Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

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By:


G. Gregory Schivley

Reg. No. 27,382

Bryant E. Wade

Reg. No. 40,344

HARNESS, DICKEY & PIERCE, P.L.C.
P.O. Box 828
Bloomfield Hills, Michigan 48303
(248) 641-1600

GGG/BEW/JAH



ATTACHMENT FOR CLAIM AMENDMENTS

The following is a marked up version of each amended claim in which underlines indicates insertions and brackets indicate deletions.

34. (Amended) A printing device which [writs] writes a pattern of an electronic paper with an electric field, comprising:

a first rotary drum; and

a second rotary drum opposing the first rotary drum,

wherein at least one of the first rotary drum and the second rotary drum includes a plurality of pixels, and each of the pixels independently forms an electric field while both the first and second rotary drums are rotating.

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